UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/537,605	06/03/2005	Bruce P. Swaybill	60,469-219;OT-5094	3567

64779 7590 11/14/2007

CARLSON GASKEY & OLDS
400 W MAPLE STE 350
BIRMINGHAM, MI 48009

EXAMINER	
KRUER, STEFAN	
ART UNIT	**PAPER NUMBER**
3654	

MAIL DATE	DELIVERY MODE
11/14/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/537,605	SWAYBILL ET AL.	
	Examiner	Art Unit	
	Stefan Kruer	3654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 October 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 - 3, 6 - 10, 13 - 16 and 22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 - 3, 6 - 10, 13 - 16 and 22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

11/9/07

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 June 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☒ Other: *Machine Translation (1)*.

DETAILED ACTION

Response to Amendment

Applicant's request for reconsideration of the finality of the rejection of the last Office action, particularly with respect to Claim 7, is persuasive and, therefore, the finality of that action is withdrawn.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claim 7 is rejected under 35 U.S.C. 102(a) as being anticipated by Hayashi et al (JP-2002003126).

Re: Claim 7, Hayashi et al disclose:

- A machine supporting portion (14, Fig. 2) that secures a machine (12) comprising a motor in a selected position in a hoistway (1);
- A termination supporting portion (16) that secures a plurality of terminations in a selected position, the termination members being configured to secure an end of associated load bearing members near the selected position, and
- a sheave supporting portion (approx. 42, Fig. 3, e.g. 13, Fig. 2) to support at least one sheave (42), the supporting portions being secured together to form a single structure (Fig. 2) that supports the machine, the termination members and the sheave, the single structure being located inside the hoistway, the machine supporting portion and the sheave supporting portion comprise two lateral beam members (14a, 14b) spaced from each other and the termination supporting portion comprises at least one transverse member (26) extending between and secured to the lateral beam members.

In reference to the claim language referring to a support device for a machine-roomless elevator system, intended use and other types of functional language must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 6 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Salmon et al (4,807,723) in view of Bauer (US 2002/0185338).

Re: Claims 1 and 22, Salmon et al disclose:

- a machine supporting portion (top, center of 14) that secures a machine comprising a motor (10) in a selected position in a hoistway (referenced, Col. 2, Line 19).
- and a sheave supporting portion (top, end of 14) to support at least one sheave; the supporting portions being secured together to form a single structure that supports the machine and the sheave, the single structure being located inside the hoistway.

However, though Salmon et al disclose load-bearing members (20), they are silent regarding a plurality of termination members and their supporting portions each comprising a plurality of metal sheets secured together.

Attention is directed to Bauer who teaches a termination-supporting portion plurality (17, Fig. 1) for securing a plurality of termination members (ends of 16) in a selected position, the termination members being configured to secure an end of associated load-bearing members (16, Para. 0020) near the selected position.

Furthermore, Bauer teaches his supporting portions comprising a plurality of metal sheets secured together (Para. 0017) as "... a frame 15.1 made of sections and a mounting plate 15.2..."

It would have been obvious to one of ordinary skill in the art to modify the reference of Salmon et al with the teaching of Bauer to integrate a termination in the machine-supporting portion as typical of conventional (2:1) rope suspension systems.

Re: Claim 6, Salmon et al disclose their machine- and sheave-supporting portions as comprising two lateral beam members (14).

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Salmon et al in view of Bauer, as applied to Claim 1, and in further view of Morris et al (4,537,286).

Salmon et al are silent regarding a termination-supporting portion.

Bauer teaches his first and second termination members (17, Fig. 1 and 19, Fig. 2, respectively) having respective first and second termination-supporting portions, wherein his first terminating supporting portion forms a single structure with his machine supporting portion, sheave and termination members, and said single structure is located inside the hoistway.

However, his second termination portion is secured separately of his single structure.

Attention is directed to Morris et al who teach a support device having a large plurality of termination members suspended from termination-support members mounted on overhead beams, machine beams or ... auxiliary beams..." (Col. 3, line 4) of particular benefit for applications utilizing 2:1 suspension (Col. 1, line 11), wherein his termination portion comprises a plurality of metal sheets secured together.

It would have been obvious to one of ordinary skill in the art to modify the reference of Salmon et al and Bauer with the teaching of Morris et al to integrate a second termination portion in the machine-supporting portion to accommodate 2:1 rope suspension systems as known in the art for reduction of space and drive capacities.

Claims 3 and 8 - 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Salmon et al in view of Bauer, as applied to Claim 1, and in further view of de Jong et al (5,361,873).

Re: Claim 3, Salmon et al and Bauer disclose a single sheave-supporting portion.

Attention is directed to de Jong et al who their first and second sheave supporting portions to accommodate additional tensioning for maintaining alignment of suspension ropes within the sheave grooves as well as their displacement.

It would have been obvious to one of ordinary skill in the art to modify the reference of Salmon et al and Bauer with the teaching of de Jong et al to provide additional aligning means of suspension ropes for flexibility of installation and smoother operation.

Re: Claims 8 and 9, Salmon et al disclose a mounting member near each end of the lateral beam members.

Bauer discloses his mounting member(s) (15.2) in combination with a "... frame (15.1) made of sections... " whereby his mounting member(s) is "... fastened to... rails..." (Para. 0017) that carry a load of the device and associated elevator system components; however, Bauer is silent regarding the details of his frame.

Attention is directed to de Jong et al who teach their device including:

- two spaced lateral beam members (right-left, Fig. 4),
- at least one transverse beam (Fig. 5) extending between and secured to the lateral beam members near each end of the beam members,
- mounting members near each end of each lateral beam member (Fig. 4),

- said mounting members securing the device to a structure that carries a load of the device.
- And a plurality of vertical brace members (raised portions, Fig. 4) connected to each of the mounting members;

It would have been obvious to one of ordinary skill in the art to modify the reference of Salmon et al and Bauer with the teaching of de Jong et al to provide an appropriately constructed and secured support-framing structure.

Claims 10 and 13 & 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Salmon et al in view of de Jong et al and in further view of Orrman et al (US 2002/0017434).

11/4/07

Re: Claims 16 and 15, Salmon et al disclose:

- a machine having a motor (10) and a drive sheave (12) inside a hoistway,
- an idler sheave (16) inside a hoistway,
- an elevator cab ("car"),
- a counterweight ("C.W.")
- a plurality of elongated load bearing members (20) associated with the cab and counterweight, said load bearing members being moveable about the drive sheave and idler sheave in response to operation of the machine;
- a single support device in the hoistway that secures the machine and sheave in a desired position in the hoistway relative to the cab and counterweight;
- the support device includes two lateral beam members (14) that provide support for the machine and the sheave, the lateral beam members are spaced from each other;

however, Salmon et al are silent regarding a plurality of termination members associated with the ends of the load-bearing members, wherein said termination members are secured by their single support device, as well as their idler sheave and drive rotating about non-parallel axes and a wrap angle of at least 180° around their drive sheave.

Attention is directed to de Jong et al who teach the structure of Salmon et al with an idler sheave (8, Fig.'s 4 and 5) and their machine comprising a motor (1) and drive sheave (3). The orientation of their traction and idler sheave(s) incorporate an offset(s) with respect to their parallel axes in order to accommodate a desired frictional loading without compromising the service life of their ropes (4, Fig. 3 and Fig. 6b). Furthermore, de Jong et al teach their idler sheave and drive sheave positioned relative to each other so that the elongated load bearing members (4) extend vertically, deflect about the idler sheave in a generally horizontal direction and then are wrapped at least 180° around the drive sheave, whereby their idler sheave and drive sheave rotate about parallel axes.

However, though terminations at ends of elongated load bearing members for supporting an elevator cab and counterweight are known in the art, de Jong et al are silent regarding terminations.

Further consideration is directed to Orrman et al who teach their terminations (10, 11) associated with the ends of their load bearing members (9) for suspending their cab and counterweight, their terminations fixed to a common support device that secures the machine and terminations in a desired position inside the hoistway relative to their cab (2) and counterweight (4) as a "...compact package... suited for... modernization projects... and (sic) an elevator without a machine room..." (Para. 0011).

It would have been obvious to one of ordinary skill in the art to modify the reference of Salmon et al with the teaching of de Jong et al and Orrman et al, to provide a single support device for the machine, sheave and terminations in a 2:1 suspension arrangement for savings in space and drive capacity.

Re: Claims 10 and 13, Salmon et al disclose their support device includes two lateral beam members to support the machine and idler sheave, the lateral beam members are spaced apart from each other, and at least one transverse member; however, Salmon et al are silent regarding terminating members and their support.

De Jong et al disclose both lateral and transverse beam members; however, De Jong et al are silent regarding at least one termination member secured to their lateral beam members.

It is Orrman et al who teach their first and second terminations (10, 11) secured to either end of their support device, and thereby the transverse beam members of De Jong et al, to provide a single support device for the machine, sheave and terminations for operability in 2:1 roping suspensions and compactness.

Re: Claim 14, Salmon et al disclose their support comprise a plurality of metal beam members.

Response to Arguments

Applicant's arguments, filed 10 October 2007, with respect to **Claim 7** have been fully considered and are persuasive. Finality of the previous office action is withdrawn.

Adressing applicant's argument with respect to **Claim 7**, applicant stated that the term "terminations" is known in the art as "... hitch devices used in securing an end of a rope or belt..."; however, the apparatus of **Claim 7** is not definitive as to purpose or form of the machine and its ancillaries, and therefore a broad interpretation of the claim language is warranted. Therefore, terms as "terminations" and "load bearing members" can certainly be interpreted as connectors, end-points or receptacles and load-bearing, structural elements, respectively, within the concept of supports, frame work, etc.

Claim language such as "A machine supporting portion that secures a machine comprising a motor in a selected position in a hoistway... a termination supporting portion that secures a plurality of termination members... configured to secure an end of associated load bearing members... a sheave supporting portion that supports at least one sheave, the supporting portions being secured together to form a single structure..." is not sufficiently limiting to overcome the prior art of the previous office action. The finality of the previous office action was withdrawn due to ambiguity as noted by the applicant in the examiner's designation of elements 32 and 26 of the cited reference, Glassey et al, as common elements with the progression of the recitation.

With respect to applicant's arguments pertaining to **Claims 1 – 3, 6 – 9 and 22** of the previous office action, applicant argues that the reference of Bauer does not teach a plurality of metal sheets secured together; however, as cited in the rejection and acknowledged by the applicant, Bauer states that his "... supporting construction 15, which consists of a frame 15.1 made of sections and a mounting plate 15.2..." (Para. 0017, Figure 1) teaches the plurality of metal sheets secured together, as would be expected at the minimum as an adequate framework for supporting the loads associated with an elevator drive. Therefore, as per the review of the previous rejection of **Claim 7**, the cited prior art of record meets/teaches the claim language.

Furthermore, with respect to applicant's arguments in his review of the rejection of **Claim 2**, Bauer teaches a support arrangement comprising metal sheets, said support arrangement forming a single structure for supporting his machine, sheave and terminations members, the latter of his first termination portion. Morris et al the ability to have multiple, disparate termination members supported from a common, as well opposing/interconnected, termination supporting portions (hence, first and second termination portions), wherein said portions can comprise beams that support a machine.

Therefore, Bauer and Morris et al teach the structure lacking in Salmon et al, to accommodate a 2:1 suspension for known features such as reduction in drive capacity, enhanced responsiveness, compactness and superior leveling control.

Again, as reviewed in the previous office actions, with respect to the inability of modifying Salmon et al with the teaching of de Jong et al, the applicant is correct that the reference of Salmon et al discloses the idler and drive sheaves having non-parallel axes in light of necessary offset to accommodate the rope pattern. De Jong et al, however, teaches the axes of the idler and drive sheaves as being parallel through an offset (T, U) in the plane of rotation of said idler sheave in relation to that of the drive sheave, while accommodating a plurality of load bearing members and promoting their service life. Hence, De Jong et al teach to overcome the "drawbacks" of Salmon et al.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Raida et al (GB 2383791A) are cited for reference of a support device for a machine-roomless elevator system having a machine supporting portion comprising a motor in a selected position in a hoistway and a termination supporting portion that secures a plurality of termination members, wherein said members respectively secure an end of associated load bearing members, and the machine supporting portion comprising two lateral beams members secured together with a transverse mounted member comprising the termination supporting portion, respectively.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stefan Kruer whose telephone number is 571.272.5913. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Cuomo can be reached on 571.272.6856. The fax phone number for the organization where this application or proceeding is assigned is 571.273.8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866.217.9197 (toll-free)

SHK
7 November 2007

Peter M. Cuomo
Supervisory Patent Examiner
Technology Center 3600

[Document Name] Description

[Title of the Invention] The repair method of an elevator

[Claim(s)]

[Claim 1] Set up a guide rail to a hoistway, balance with the riding basket guided along with this guide rail, respectively, and weight is connected in at least two or more main **. In the repair method which updates the control device and drive of an elevator which arrange the drive which has **** which rolls this main ** almost in the hoistway upper part Said riding basket, said balance weight, said guide rail, etc. utilize an established article. The repair method of the elevator characterized by having arranged the drive which deletes the floor slab of the machinery room which has arranged two or more **** established newly in the established riding basket upper part and the established balance weight upper part, and has been arranged further at said hoistway top part, and installs and establishes said guide rail newly in said machinery room.

[Claim 2] The repair method of the elevator according to claim 1 characterized by having concealed the hoistway projection part in an elevator machinery room, and forming the empty space of said elevator machinery room.

[Claim 3] The repair method of the elevator according to claim 1 characterized by having established the car stop entrance for elevators in the penthouse it was considered in existing that was a hoistway top crevice, and considering it as a service story.

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the repair method of an elevator.

[0002]

[Description of the Prior Art] The general repair method of the elevator driven by the conventional main ** and conventional **** is explained using drawing 3 and drawing 4.

[0003] The whole elevator outline figure in which drawing 3 shows the conventional technology, and drawing 4 are the machinery room top views of an elevator showing the conventional technology.

[0004] In the figure, the guide rail 6 for balance weights to which it shows the guide rail 3 for riding baskets and the balance weight 5 to which it rides on with brackets 4 and 7, and shows a basket 2 is fixed to a hoistway 1, and it is installed in it from hoistway 1 bottom to near the top part. The elevator machinery room 30 is formed in the upper part of a hoistway 1, and **** 41 and the loop wheel machine 40 which curves and consists of a car 42 and an electric motor 43 are installed in the elevator machinery room 30 on the machine stand 44. Moreover, unusual **** of the control device 45 and the riding basket 2 which performs electrically rate control and operation control of the riding basket 2 is detected, and the speed regulator 46 for operating the extraordinary stop equipment which was formed in the riding basket 2 and which is not illustrated is arranged.

[0005] the hanger plate which matches the riding basket 2 and is not illustrated to weight 5 at each upper part is formed -- **** 41 of a loop wheel machine 40 -- it curves and the both ends of the main rope 11 are being fixed through the car 42. Therefore, it is constituted so that it may ride through the main rope 11 by the drive of a loop wheel machine 40 and a basket 2 may go up and down.

[0006] In the repair method of doing the repair work aiming at updating run performance, display control, etc. of an elevator to the newest thing, lowering power consumption or shortening waiting time for a short period of time Generally it rode, and a basket 2, the balance weight 5, a guide rail 3, and 6 grades utilized the established article, and have exchanged the control device 45 and the drive (loop wheel machine) 40 which were installed in the elevator machinery room 30 to the newest model.

[0007]

[Problem to be solved by the invention] In apartment houses, such as an apartment, common parts, such as stairs, are not included in the candidate for calculation of the floor area ratio of a building in recent years, Furthermore, since the deregulation measure of installing a drive in a hoistway in an elevator is taken, it sets to each maker. While not needing an elevator machinery room but arranging a drive in a hoistway, the elevator which does not impose the load of an elevator for a burden on the building side is

adopted as a normalized form.

[0008] However, when the elevator of a type without the above-mentioned machinery room is adopted as repair of an established elevator, it can be difficult for the plane size in a hoistway to be insufficient and to arrange each apparatus, or it cannot pay load of a structure top elevator with elevator equipment itself. Therefore, after carrying out one set withdrawal of the established elevator equipment in the repair updated in an elevator without the machinery room of the above-mentioned normalized form, new elevator equipment needed to be installed.

[0009] Moreover, even when it rode on the hoistway top part and a basket went up to the highest floor, sufficient top crevice where the maintenance member which is on a basket does not collide with the top part of a hoistway was required, and since predetermined carried out the size reservation of the OH size, the penthouse did not have to consider it as a service story, but needed to go up the penthouse from the highest floor on stairs.

[0010] Main equipment, such as a riding basket, balance weight, and a guide rail, has utilized the established article, without having made the purpose of this invention in view of the above problems, and removing all the established elevator equipment. While being able to update in an elevator of the latest style, even the penthouse which must usually go up and down on stairs is made into a service story, and it is in offering the repair method of an elevator that an elevator machinery room is further utilizable for other uses other than an elevator.

[0011]

[Means for solving problem] The above-mentioned purpose sets up a guide rail to a hoistway, balances with the riding basket guided along with this guide rail, respectively, and connects weight in at least two or more main **. In the repair method which updates the control device and drive of an elevator which arrange the drive which has **** which rolls this main ** almost in the hoistway upper part Said riding basket, said balance weight, said guide rail, etc. utilize an established article. The floor slab of the machinery room which has arranged two or more **** established newly in the established riding basket upper part and the established balance weight upper part, and has been arranged further at said hoistway top part is deleted, and it is attained by having arranged the drive which installs and establishes said guide rail newly in said machinery room.

[0012]

[Mode for carrying out the invention] The form of 1 operation of this invention is hereafter explained based on Drawings.

[0013] The whole elevator outline figure in which drawing 1 shows one embodiment of this invention, and drawing 2 are the machinery room top views of an elevator showing one embodiment of this invention. Here, the same mark is given to drawing 3 and the same portion as 4.

[0014] In a figure, the portion which corresponds the floor slab of the hoistway 1 right above part of a machinery room 30 to a hoistway project area at least is deleted, the partition 20 is formed further, and it is considered that the space 30a which hits inside this partition 20 is the extension of a hoistway 1. Here, although the partition 20 was used as the mere wall in this embodiment, you may prepare the door for check etc.

[0015] The guide rails 3 and 6 fixed with the brackets 4 and 7 in a hoistway 1 utilize an established article, and install guide rails 3a and 6a to the extension 30a of a hoistway further. To the installed guide rails 3a and 6a, the attachments lug 14a and 14b and also the receptacle stand 13a for loop wheel machines, 13b is prepared, the loop wheel machine 12 adopted as the normalized form elevator of a type without the newest machinery room which has **** 11 in the upper part of the receptacle stands 13a and 13b is arranged, and the end bracket 17 for the main rope end fixation is arranged in the attachment lug 14a and the 14b upper part.

[0016] The riding basket 2 and the balance weight 5 in a hoistway 1 utilize an established article, convert the hanger plate part which the riding basket 2 and balance weight 5 upper part does not illustrate, and attach **** 8 and 9, respectively.

[0017] The main rope 10 is almost rolled through **** 11 of said loop wheel machine 12, **** 9 of the riding basket 2, and **** 10 of the balance weight 5, and the both ends 15 and 16 of the main rope 10 are fixed to an end bracket 17a, respectively.

[0018] The control device 18 established newly is fixed to the lower part of the loop wheel machine of the hoistway 1 upper part through the attachment lug 19 at guide rails 3 and 6 or the guide rails 3a and 6a which were installed. The case, in the case of preservation work, ride on the riding basket 2, the highest floor is made to suspend the riding basket 2, and the maintenance member should just check or operate a loop wheel machine 12 and the control device 18 within a hoistway.

[0019] Moreover, in the Building Standard Law, it is determined those days in which the established elevator was installed that the area more than 2 double [of a hoistway project area] is required for an elevator machinery room. The empty space 30b of the outside of the partition 20 prepared in the elevator machinery room 30 can also be used for other uses other than an elevator by providing for a customer.

[0020] Since it constituted as mentioned above, the riding basket 2, the balance weight 5, and guide rails 3 and 6 can utilize an established article only by some reconstruction. Moreover, since the riding basket 2 is utilizable and it does not change even after the heart of the riding basket 2 converting, the frame and car stop door by the side of the car stop which is not illustrated are also utilizable.

[0021] [in order to secure a top crevice conventionally, did not provide service of the elevator for a penthouse, but] Since OH size of the bottom of the floor slab of the conventional highest floor floor to the machinery room 30 shown in drawing 3 corresponds to OH2 size from a penthouse floor to the ceiling of a machinery room 30 as shown in drawing 1 if the car stop door 21 is extended to a penthouse, Since it becomes unnecessary to be also able to make a penthouse into a service story and to go up and down on stairs, convenience improves. Moreover, although the load of an elevator shall not be imposed for the burden on the building side, since the design as which the established building had load considered in repair is made, even if the load of an elevator acts on the building side, it is satisfactory in the normalized form elevator of a type without the newest machinery room, in any way. Furthermore, since an elevator machinery room is utilizable for other uses other than an elevator, the effective floor area in a building can be expanded and the asset value of a building improves.

[0022] In this embodiment, although the case where the established elevator consisted of 1:1 loping was described, even when the established elevator consists of 2:1 loping, the same effect is acquired. Furthermore, since **** 9 and 10 of the riding basket 2 and the balance weight 5 can utilize an established article in this case, respectively, it is reconstruction slighter than the embodiment described by drawing 1, and repair work can be done.

[0023] In addition, although it shall ride and a basket 2, the balance weight 5, and guide rails 3 and 6 shall be utilized in this embodiment All the above for improvement in the further quality is established newly, and even if it constitutes loop wheel machine 12 grade like this embodiment, the same effects, such as convenience which makes a penthouse a service story, and effective use of the empty space 30b of a machinery room 30, are acquired.

[0024]

[Effect of the Invention] As mentioned above, this invention sets up a guide rail to a hoistway, balances with the riding basket guided along with this guide rail, respectively, and connects weight in at least two or more main **. In the repair method which updates the control device and drive of an elevator which arrange the drive which has **** which rolls this main ** almost in the hoistway upper part Said riding basket, said balance weight, said guide rail, etc. utilize an established article. Two or more **** established newly are arranged in the established riding basket upper part and the established balance weight upper part. Furthermore, since the drive which deletes the floor slab of the machinery room arranged at said hoistway top part, and installs and establishes said guide rail newly in said machinery room has been arranged, While being able to update main equipment, such as a riding basket, balance

weight, and a guide rail, in an elevator of the latest style, with an established article utilized, without removing all the established elevator equipment Usually, even the penthouse which must go up and down on stairs can be made into a service story, and an elevator machinery room can be further utilized for other uses other than an elevator.

[Brief Description of the Drawings]

[Drawing 1] It is the whole elevator outline figure concerning one embodiment in this invention.

[Drawing 2] It is the machinery room top view of the elevator concerning one embodiment in this invention.

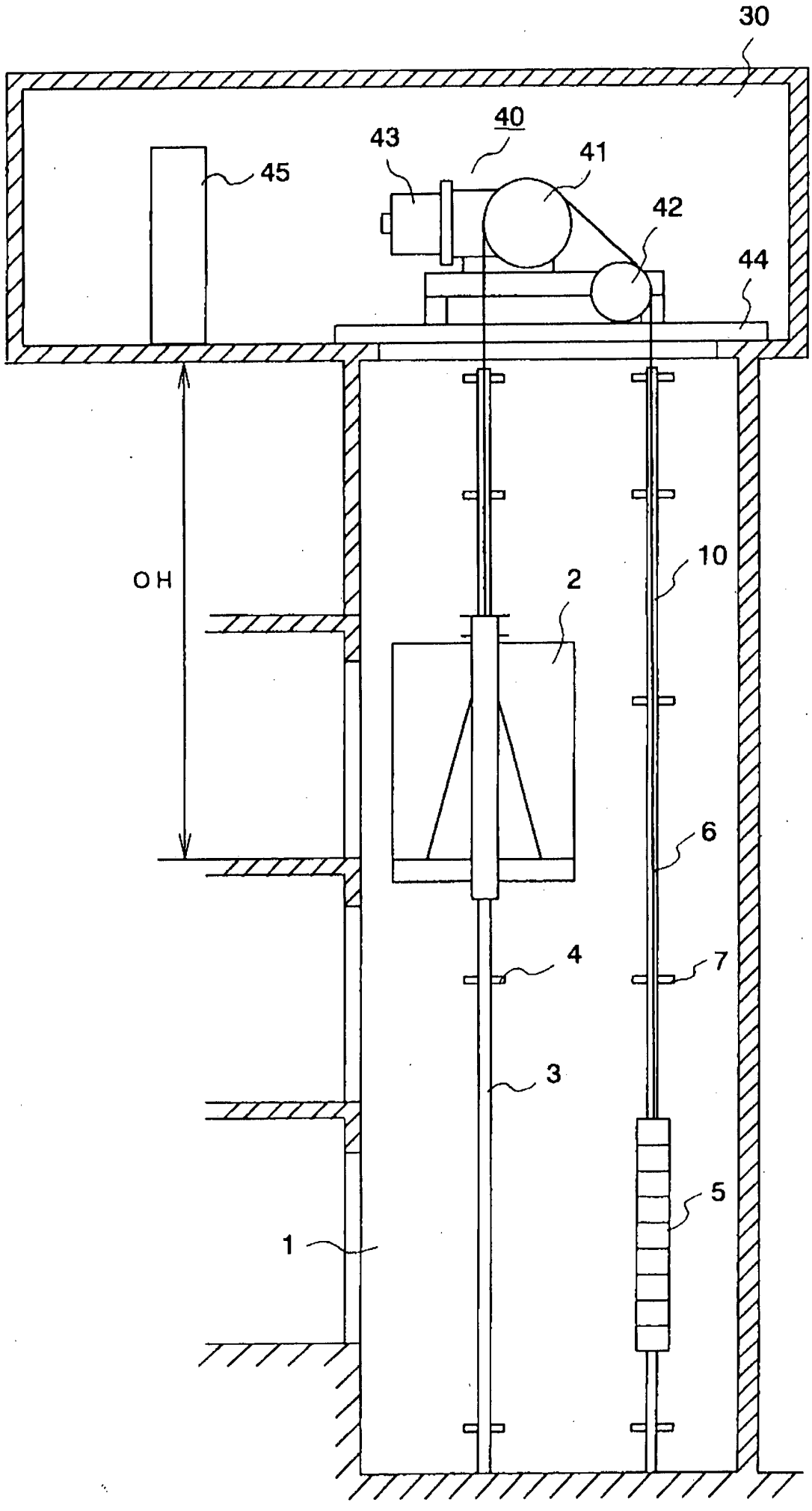
[Drawing 3] It is the whole elevator outline figure showing the conventional technology.

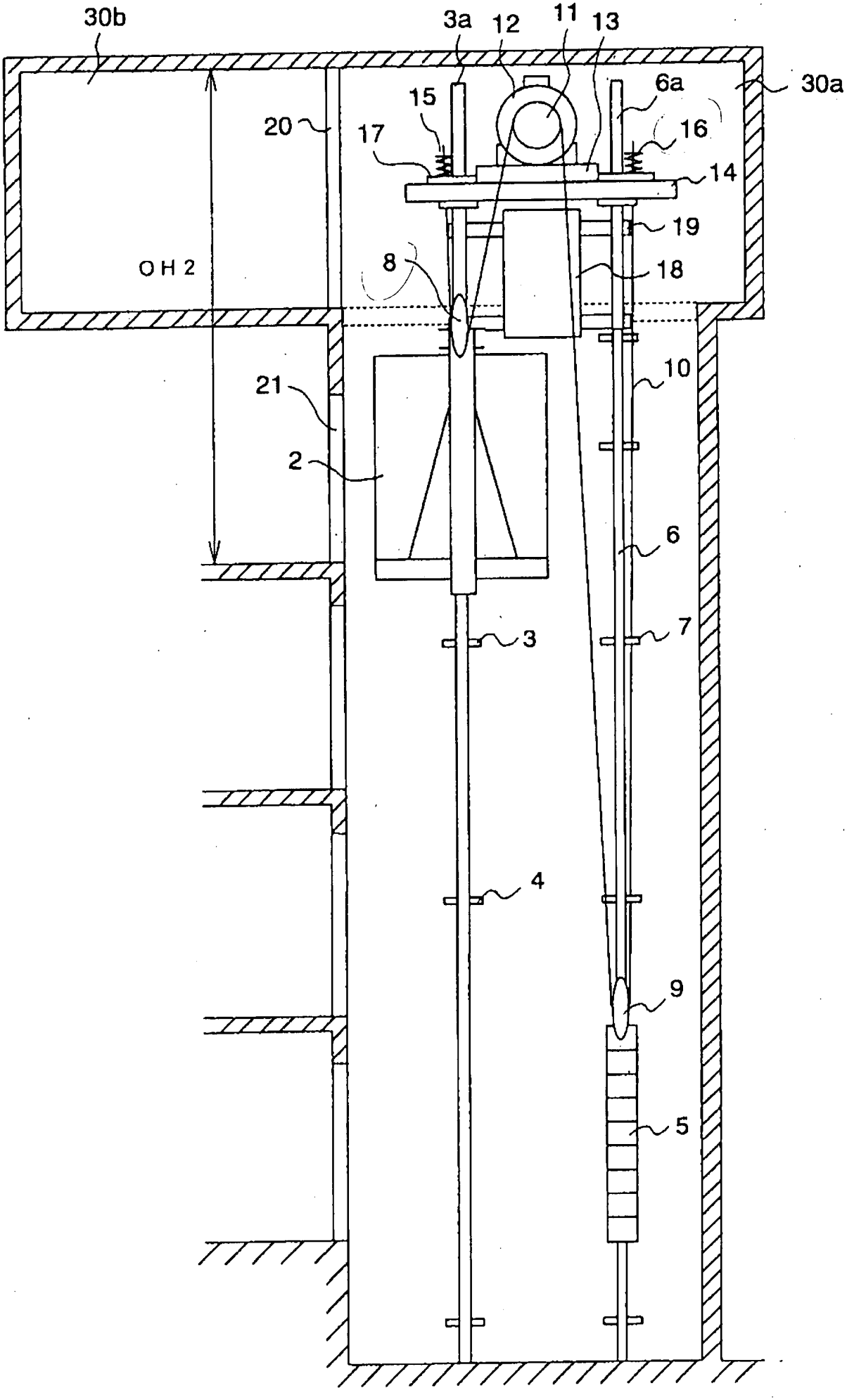
[Drawing 4] It is the machinery room top view of an elevator showing the conventional technology.

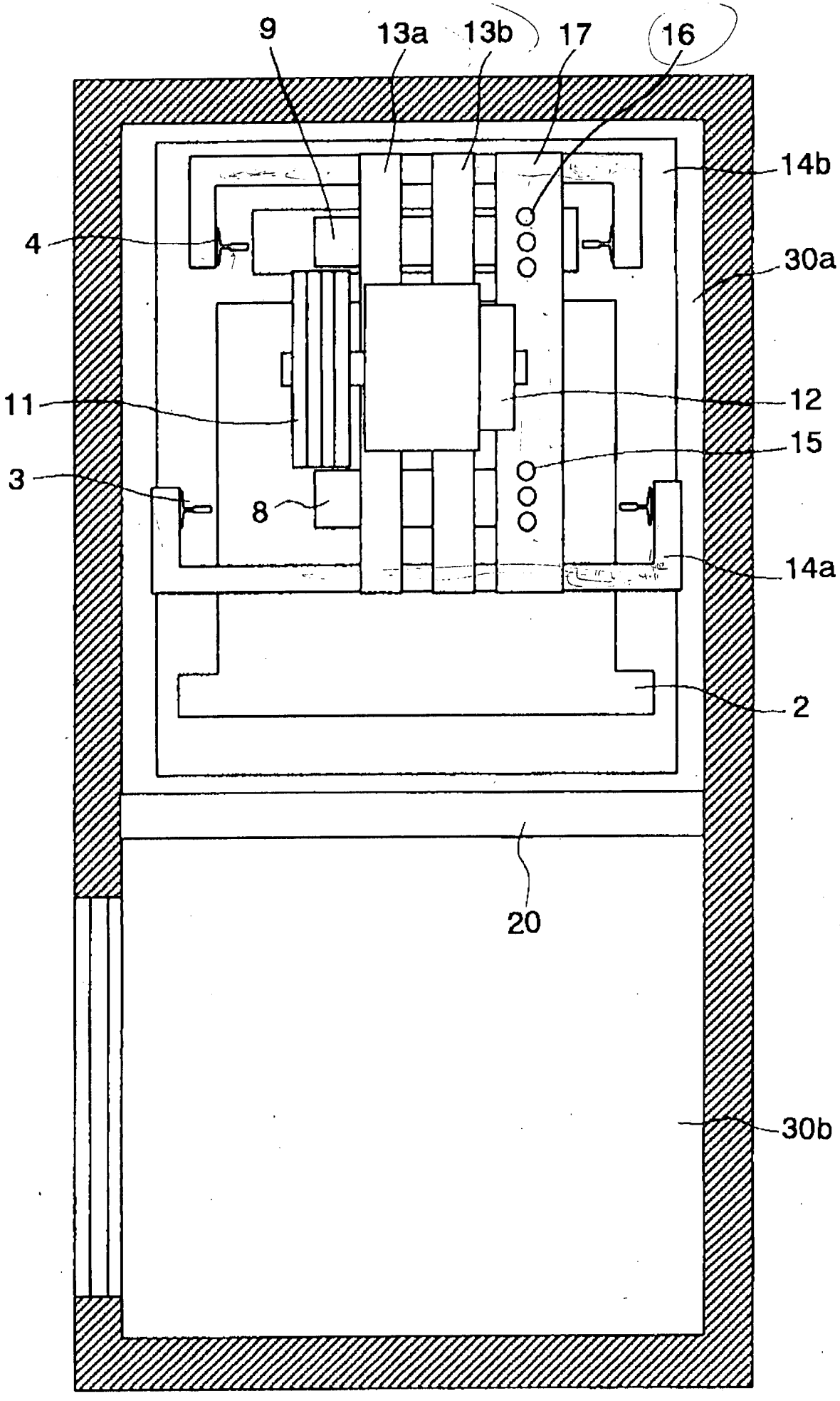
[Explanations of letters or numerals] 1 Hoistway 2 Riding Baskets 3 and 3a Guide Rail 5 Balance Weights 6 and 6a Guide Rails 8 and 9 **** 10 Main Rope 11 **** 12 Loop Wheel Machines 15 and 16 Main Rope End 17 End Bracket 20 Partition 30 Elevator Machinery Room

---

[Translation done.]


30
40
43
41
45
42
44
OH
10
2
6
4
7
3
5
1


30b
3a
12
11
13
6a
30a
15
20
17
16
14
19
OH2
8
18
10
21
2
6
3
7
4
9
5


9
13a
13b
17
16
14b
4
30a
11
12
15
3
8
14a
2
20
30b